

## CLAIMS

What is claimed is:

1. A method for characterizing a network connection comprising:  
receiving parameters that specify a network connection;  
receiving state variable information pertaining to the network connection according to the parameters;  
sensing when the network connection is initiated according to the received state variable information; and  
storing the state variable information.
2. The method of Claim 1 wherein receiving state variable information comprises:  
conveying to a protocol engine a parameter including at least one of a protocol identifier, a source address, a source port, a destination address and a destination port; and  
receiving from the protocol engine a state variable for the network connection according to the parameter.
3. The method of Claim 1 wherein sensing when the network connection is initiated comprises monitoring the value of a state variable indicative of the connection state of the connection.
4. The method of Claim 1 wherein sensing when the network connection is initiated comprises monitoring the value of a TCP/IP state variable called "STATE".
5. The method of Claim 1 further comprising:  
sensing when the network connection terminates according to the state variable information;  
retrieving stored state variable information according to the network connection after the network connection terminates; and  
creating a history of the network connection according to the state variable information.

6. The method of Claim 5 wherein creating a history of the network connection comprises:  
developing a network connection profile from the state variable information; and  
creating a history of the network connection profile.
7. The method of Claim 6 wherein creating a history of the network connection profile comprises detecting an exceptional event.
8. The method of Claim 7 further comprising analyzing the exceptional event.
9. The method of Claim 1 further comprising:  
retrieving the state variable information while the network connection continues; and  
making the state variable information available on a periodic basis.
10. The method of Claim 9 further wherein making state variable information available comprises:  
creating a dynamic profile of the network connection according to the state variable information; and  
making the dynamic profile available on a periodic basis.
11. A network connection analysis unit capable of characterizing a network connection, said network connection analysis unit comprising:  
supervisor comprising:  
command register capable of receiving parameters that specify a network connection, and  
source address register capable of receiving an address referencing the location of state variables in a state memory;  
supervisory controller capable of:  
directing a state variable request to a protocol engine according to the parameters;  
sensing when the network connection is initiated by monitoring a location in the state memory as referenced by the contents of the source address register, and

first computer readable medium controller capable of directing a plurality of state variables from the state memory to a computer readable medium when the network connection is initiated.

12. The network connection analysis unit of Claim 11 wherein the command register generates parameters including at least one of a protocol identifier, a source address, a source port, a destination address and a destination port and wherein the controller is further capable of loading into the source address register a memory reference received from a protocol engine.
13. The network connection analysis unit of Claim 11 wherein the state memory referenced by the source address register contains an indicator of activity of the network connection.
14. The network connection analysis unit of Claim 11 wherein the state memory referenced by the source address register contains a TCP/IP state variable called "STATE".
15. The network connection analysis unit of Claim 11 further comprising an off-line connection analyzer comprising:
  - off-line command register capable of receiving an off-line analysis request that includes a connection specifier;
  - off-line computer readable medium controller capable of retrieving state variables from a computer readable medium according to the connection specifier;
  - format table capable of converting the state variables into a print stream;
  - off-line analysis controller capable of causing the second computer readable medium controller to retrieve state variables and further capable of directing the retrieved state variables to the format table.
16. The network connection analysis unit of Claim 15 wherein format table includes a profile description that correlates one or more state variables to a connection profile.
17. The network connection analysis unit of Claim 16 wherein the off-line connection analyzer further comprises an exceptional event detector capable of detecting an exceptional event.

18. The network connection analysis unit of Claim 17 wherein the exceptional event detector is capable of analyzing the exceptional event.
19. The network connection analysis unit of Claim 11 further comprising a real-time connection analyzer comprising:
  - real-time command register capable of receiving an real-line analysis request that includes a connection specifier;
  - real-time computer readable medium controller capable of retrieving state variables from a computer readable medium according to the connection specifier; and
  - display subsystem capable of generating a display signal according to the retrieved state variables.
20. The network connection analysis unit of Claim 19 wherein the display subsystem comprises:
  - profile generator capable of creating a profile of a network connection.
21. A network connection analysis system comprising:
  - memory capable of storing instructions;
  - processor capable of executing instructions stored in the memory; and
  - network connection characterization instruction sequence that, when executed by the processor, minimally causes the processor to:
    - receive parameters that specify a network connection;
    - receive state variable information pertaining to the network connection according to the parameters;
    - sense when the network connection is initiated according to the received state variable information; and
    - store the state variable information.
22. The network connection analysis system of Claim 21 wherein the network connection characterization instruction sequence includes a state variable information receiver instruction sequence that, when executed by the processor, causes the processor to receive state variable information by minimally causing the processor to:
  - convey to a protocol engine a parameter including at least one of a protocol identifier, a source address, a source port, a destination address and a destination port; and

receive from the protocol engine state variables for the network connection according to the parameter.

23. The network connection analysis system of Claim 21 wherein the network connection characterization instruction sequence causes the processor to sense when the network connection has been initiated by minimally causing the processor to monitor the value of a state variable that is indicative of the connection state of the connection.
24. The network connection analysis system of Claim 21 wherein the network connection characterization instruction sequence causes the processor to sense when the network connection has been initiated by minimally causing the processor to monitor the value of a TCP/IP state variable called "STATE".
25. The network connection analysis system of Claim 21 further comprising an off-line connection analysis instruction sequence that, when executed by the processor, minimally causes the processor to:
  - sense when the network connection terminates according to the state variable information;
  - retrieve stored state variable information after the network connection terminates; and
  - create a history of the network connection according to the state variable information.
26. The network connection analysis system of Claim 25 wherein the off-line connection analysis instruction sequence comprises a network connection profile creation instruction sequence that, when executed by the processor, causes the processor to create a history by minimally causing the processor to:
  - develop a network connection profile from the state variable information; and
  - create a history of the network connection profile.
27. The network connection analysis system of Claim 26 wherein the network connection profile creation instruction sequence comprises an exceptional event detection instruction sequence that, when executed by the processor, minimally causes the processor to detect an exceptional event.

28. The network connection analysis system of Claim 27 wherein the network connection profile creation instruction sequence further comprises an exceptional event analysis instruction sequence that, when executed by the processor, minimally causes the processor to analyze the exceptional event.
29. The network connection analysis system of Claim 21 further comprising:  
display driver capable of generating a display signal; and  
real-time connection analysis instruction sequence that, when executed by the processor, further minimally causes the processor to:  
retrieve the state variable information while the network connection continues;  
and  
direct the state information to the display driver.
30. The network connection analysis system of Claim 29 wherein the real-time connection analysis instruction sequence comprises a dynamic profile generation instruction sequence that, when executed by the processor, minimally causes the processor to:  
create a dynamic profile of the network connection according to the state variable information; and  
direct the dynamic profile to the display driver.
31. A computer-readable medium having computer-executable functions for characterizing a network connection comprising:  
network connection characterization instruction sequence that, when executed by a processor, minimally causes the processor to:  
receive parameters that specify a network connection;  
receive state variable information pertaining to the network connection according to the parameters;  
sense when the network connection is initiated according to the received state variable information; and  
store the state variable information.
32. The computer-readable medium of Claim 31 wherein the network connection characterization instruction sequence includes a state variable information receiver

instruction sequence that, when executed by a processor, causes the processor to receive state variable information by minimally causing the processor to:

convey to a protocol engine a parameter including at least one of a protocol identifier, a source address, a source port, a destination address and a destination port; and receive from the protocol engine state variables for the network connection according to the parameter.

33. The network connection analysis system of Claim 31 wherein the network connection characterization instruction sequence causes the processor to sense when the network connection has been initiated by minimally causing the processor to monitor the value of a state variable that is indicative of the connection state of the connection.
34. The network connection analysis system of Claim 31 wherein the network connection characterization instruction sequence causes the processor to sense when the network connection has been initiated by minimally causing the processor to monitor the value of a TCP/IP state variable called "STATE".
35. The computer-readable medium of Claim 31 further comprising an off-line connection analysis instruction sequence that, when executed by a processor, minimally causes the processor to:
  - sense when the network connection terminates according to the state variable information;
  - retrieve stored state variable information after the network connection terminates; and
  - create a history of the network connection according to the state variable information.
36. The computer-readable medium of Claim 35 wherein the off-line connection analysis instruction sequence comprises a network connection profile creation instruction sequence that, when executed by a processor, causes the processor to create a history by minimally causing the processor to:
  - develop a network connection profile from the state variable information; and
  - create a history of the network connection profile.
37. The computer-readable medium of Claim 36 wherein the network connection history profile instruction sequence comprises an exceptional event detection instruction

sequence that, when executed by a processor, minimally causes the processor to detect an exceptional event.

38. The computer-readable medium of Claim 37 wherein the network connection profile creation instruction sequence further comprises an exceptional event analysis instruction sequence that, when executed by a processor, minimally causes the processor to analyze the exceptional event.

39. The computer-readable medium of Claim 31 further comprising a real-time connection analysis instruction sequence that, when executed by a processor, further minimally causes the processor to:

- retrieve the state variable information while the network connection continues; and
- direct the state information to a display driver.

40. The computer-readable medium of Claim 39 wherein the real-time connection analysis instruction sequence comprises a dynamic profile generation instruction sequence that, when executed by a processor, minimally causes the processor to:

- create a dynamic profile of the network connection according to the state variable information; and
- direct the dynamic profile to the display driver.

41. A network connection analysis apparatus comprising:

- means for receiving state variable information pertaining to the network connection according to a set of received network parameters;
- means for sensing initiation of the network connection according to the received state variable information; and
- means for storing the state variable information.

42. The network connection analysis apparatus of Claim 41 wherein the state variable information receiving means comprises:

- means for conveying to a protocol engine a parameter including at least one of a protocol identifier, a source address, a source port, a destination address and a destination port; and



means for receiving from the protocol engine a state variable for the network connection according to the parameter.

43. The network connection analysis apparatus of Claim 41 wherein the means for sensing initiation of the network connection comprise a means for monitoring the value of a state variable indicative of the connection state of a network connection.
44. The network connection analysis apparatus of Claim 41 wherein the means for sensing initiation of the network connection comprise a means for monitoring the value of a TCP/IP state variable called "STATE".
45. The network connection analysis apparatus of Claim 41 further comprising:  
means for sensing when the network connection terminates according to the state variable information;  
means for retrieving stored state variable information according to the network connection after the network connection terminates; and  
means for creating a history of the network connection according to the state variable information.
46. The network connection analysis apparatus of Claim 45 wherein means for creating a history of the network connection comprises:  
means for developing a network connection profile from the state variable information; and  
means for creating a history of the network connection profile.
47. The network connection analysis apparatus of Claim 46 wherein means for creating a history of the network connection profile comprises means for detecting an exceptional event.
48. The network connection analysis apparatus of Claim 47 further comprising means for analyzing the exceptional event.
49. The network connection analysis apparatus of Claim 41 further comprising:  
means for retrieving the state variable information while the connection continues;  
and

means for making the state variable information available on a periodic basis.

50. The network connection analysis apparatus of Claim 49 wherein means for making the state variable information available comprises:

means for creating a dynamic profile of the network connection according to the state variable information; and

means for making the dynamic profile available on a periodic basis.